Novell Portal Services

A Better Way To Build a Desktop

by Cheryl Walton

Do you ever look at your Windows desktop and wish it could be more useful? For example, do you ever wish that your desktop could provide one-click access to everything from company news to the latest list of help-desk calls? If the answer to this question is yes, a portal can make your wishes for a more useful desktop come true.

According to a recent article in InformationWeek, “many companies are using portals as their new desktop, replacing the Windows start button.” (“The New Desktop: Powerful Portals,” InformationWeek Online, May 1, 2000. You can download this article from www.informationweek.com/784/portal.htm.) Not surprisingly, companies are replacing Windows desktops with employee portals because portals can provide a single point of access to everything employees need.

Using a portal as a desktop can save you and the users on your company’s network a great deal of time, especially if that portal supports single sign-on technology. In this case, users can log in once to access all of their applications rather than having to log in to each application separately.

As you can imagine, the most useful employee portal can also give you access to the data and applications that you, and only you, need—including legacy applications. Of course, to achieve this level of usefulness, you must be able to customize your portal.

Fortunately, you can create such a portal using Novell’s new framework for creating portals: Novell Portal Services. Currently in closed beta with select Novell customers (code named lighthouse customers), Novell Portal Services will soon be available to all Novell customers.

Novell Portal Services helps you create a portal that functions as a timesaving desktop for you and the users on your company’s network. At the same time, this portal can be an e-business portal tailored to the needs of your company’s customers and partners. In other words, with Novell Portal Services, you can create a portal that is virtually whatever you want it to be, depending on who is accessing that portal.

ALL THINGS TO ALL PEOPLE

For example, Novell used Novell Portal Services to create its i-login.Net portal for Novell employees. The i-login.Net portal is already providing Novell employees with a single sign-on, single point of access to a number of services, including GroupWise e-mail, GroupWise address book, file services, and Novell news. Novell is adding to the list of i-login.Net services almost daily, and soon this portal could replace employees’ desktops and even help Novell eliminate the cost of WAN lines. (See “The Portal to Savings” in the article “i-login: It’s One Net Live From Novell” on p. 14.)

The i-login.Net portal is one of the many innovations that comprise Novell’s i-login initiative, the immediate aim of which is to develop Net services software that solves Novell’s own networking problems. Net services software is designed to realize Novell’s one Net vision, which blurs the boundaries between networks and ultimately accelerates the transition to e-business. The long-term goal of Novell’s i-login initiative is to provide Net services software that can solve your company’s networking problems.

To achieve its long-term goal for i-login solutions, Novell shares these solutions with lighthouse customers. These lighthouse customers provide feedback that enables Novell to tailor its solutions to the problems of the networking world at large. (For more information about Novell’s i-login.Net portal and the i-login initiative, see “i-login: It’s One Net Live From Novell” on pp. 6–20.)

Rockford Corp., one of the lighthouse customers that provided feedback for Novell Portal Services, is now using this product to create a corporate portal that is literally all things to all people. Rockford, an audio equipment manufacturer, is creating a portal that provides personalized access to applications and services for employees in each of the company’s three divisions.

According to Chris Duffy, a network administrator for Rockford Fosgate (a division of Rockford), Rockford wants to offer
its employees “a really nice portal, which they can customize.” Through this portal, Rockford employees will have access to services (such as e-mail, file, and print) as well as access to legacy applications.

In addition, Rockford wants its portal to provide its distribution channel partners and suppliers with personalized access to information such as build schedules and available inventory. Eventually, Rockford plans to extend its portal services to customers who want to order products online.

**IT’S ALL IN THE DIRECTORY**

How can one portal function as a desktop for your company’s employees and, at the same time, function as an e-business portal for your company’s customers and partners? Not surprisingly, the answer to this question lies in the extent to which Novell Portal Services uses directory services. Novell Portal Services supports directories that comply with the Lightweight Directory Access Protocol version 3 (LDAP v3) standard, including NDS eDirectory 8.5 and 8.0. As you know, LDAP v3 specifies the way you access a directory, not the structure of that directory. Novell Portal Services works with LDAP v3-compliant directories that are structured hierarchically and enable you to assign rights and attributes to the objects within the directory hierarchy.

Novell Portal Services uses the directory to provide portal content that is tailored to the needs of the user who is accessing the portal—whether that user is an employee, a customer, or a supplier. To provide this customized content, Novell Portal Services stores information about users’ access rights in the directory.

In addition, Novell Portal Services stores portal layout and configuration information in the directory. As a result, you can personalize the layout and content of the portal for every user, group, organizational unit, or organization object in the directory. If you choose, you can also enable users to further personalize their own portal views.

**One Brain, Many Faces**

When you install Novell Portal Services, the installation program extends the directory schema to include several new types of objects and attributes. For example, the installation program adds a portal configuration object and a gadget object.

The portal configuration object provides the intelligence for Novell Portal Services. Depending on the content and services you want to provide for each user or group of users, you can configure multiple layouts, which are called object schemes, for each portal. The portal configuration object then stores the context of the user, group, organizational unit, or organization objects for which you are configuring the object schemes. The portal configuration object also extends the attributes of these objects to include layout information.

Providing your directory supports inherited rights, object schemes are inherited down context in the directory tree. For example, if you configure an object scheme for a particular organizational unit object, all of the user objects under that organizational unit object in the directory tree inherit that object scheme. When one of these users logs in to Novell Portal Services, Novell Portal Services starts reading layout information at that user’s user object. Novell Portal Services continues reading layout information up context to the root of the directory tree or until Novell Portal Services reaches a flag that tells it to stop reading. (You can set this flag using the Novell Portal Services administration tool, which is included with the Novell Portal Services framework.)

The portal configuration object also creates a gadget object for each gadget you install within a particular object scheme and then stores a pointer to this gadget object. Gadgets are small applications that provide services and content for Novell Portal Services. For example, in Novell’s i-login.Net portal, gadgets...
Operation Flawless

Novell Portal Services is based entirely on the following industry standards: Java, Lightweight Directory Access Protocol version 3 (LDAP v3), eXtensible Markup Language (XML), eXtensible Stylesheet Language (XSL), and HTTP. Logically, Novell Portal Services should interoperate with any software that also adheres to these standards, right?

Right. Because standards are open to interpretation, however, you might need to tweek things a bit to make Novell Portal Services work with the software you choose. If you enjoy figuring out how to make software run properly with other software, you can probably get Novell Portal Services running on any Java Virtual Machine (JVM) 1.2.2 or higher with any web server and any web application server (or servlet engine) that can run on this JVM. You can also probably get Novell Portal Services to communicate properly with any LDAP v3 directory and with any standard web browser—provided that the LDAP v3 directory is really (100 percent) compliant with the LDAP v3 standard.

If you don’t enjoy figuring out how to make standards-based software interoperate, however, you can use Novell Portal Services with software that Novell has tested with Novell Portal Services. In fact, Novell has tweaked the software to run with Novell Portal Services, and the Novell Portal Services installation program configures most of this software for you.

For software that works flawlessly with Novell Portal Services, you can choose from the following list:

**JVM AND SERVER OPERATING SYSTEMS**
- JVM 1.2.2 or higher
- Windows 2000 and NT 4.0
- Red Hat Linux 6.2
- Solaris

You can download a JVM 1.2.2 or higher for these and other operating systems from http://java.sun.com/j2se.

**WEB SERVERS**
- Apache Software Foundation Apache Server 1.3.14
- Sun-Netscape iPlanet Application Server (which includes a servlet engine)
- Novell Enterprise Web Server 5.10

**WEB APPLICATION SERVERS AND SERVLET ENGINES**
- Apache Software Foundation Jakarta Tomcat 3.1


**LDAP V3-COMPLIANT DIRECTORIES**
- Novell NDS eDirectory 8.5
- Novell NDS eDirectory 8.0

Novell Portal Services includes a wizard that allows you to configure portal access rights in NDS eDirectory 8.5 through the portal. If you use other directories, including NDS eDirectory 8.0, you must use ConsoleOne to configure portal access rights.

**BROWSERS**
- Microsoft Internet Explorer (IE) 4 or higher
- Netscape Communicator 4.5 or higher
- Macintosh IE 4 or higher

Novell Portal Services performs best if you use a browser that supports XML. At present, the only browser that supports XML is IE 4.01 with Service Pack 1 and MSXML Parser. To download MSXML Parser, visit http://msdn.microsoft.com/downloads/default.asp?URL=/code/sample.asp?url=/msdn-files/027/000/541/msdncompositedoc.xml.

**THE FUTURE**

Novell plans to continue testing Novell Portal Services for compatibility with standards-compliant software. As John Ransom VanOrman II, a software engineer at Novell, explains: “It’s Novell’s intention to test Novell Portal Services with the operating systems that companies are using right now.” As a result, VanOrman says, Novell plans to add software that runs on other operating systems to this list in future versions of Novell Portal Services.

In addition, future versions of Novell Portal Services will be able to communicate with any wireless device—such as a personal digital assistant (PDA)—that can access the Internet and that uses Wireless Application Protocol (WAP). To accomplish this, Novell plans to include code that detects the kind of Internet-enabled device from which you are accessing Novell Portal Services. Depending on the device you are using to access the portal, “Novell Portal Services will render and then send out the correct HTML for that device,” Matt Brooks, a software engineer for Novell, explains.

Beyond Flexibility

Novell made Novell Portal Services scalable by basing it on the directory. Because one portal configuration object controls all of the layouts for a particular portal, you can run that portal on multiple web servers, each of which refers back to this single portal configuration object for information. (See Figure 1 on p. 24.) Using the portal configuration object as the intelligence of a particular portal has an obvious benefit: You can manage the portal through a single object rather than having to manage the portal on a server-by-server basis. Of course, this benefit increases in proportion to the number of servers running Novell Portal Services.

Wide Open

Novell does not specify NDS eDirectory as the directory that Novell Portal Services uses. In fact, Novell Portal Services “doesn’t make any NDS-specific
Standards at Work

The goal of standards-based software is, in a nutshell, interoperability—the ability of one vendor’s software to interoperate with another vendor’s software. To help Novell Portal Services achieve this goal, Novell based Novell Portal Services on the following industry standards:

JAVA

The Novell Portal Services framework is Java based, which means that Novell Portal Services is—theoretically speaking—cross-platform. That is, in theory, the servlet that comprises the Novell Portal Services framework can run on any Java Virtual Machine (JVM) 1.2.2 or higher on which a web server with a servlet engine is running. (See Figure 2 on p. 32.)

As Novell knows from experience, however, what works in theory doesn’t always work in practice. Novell has therefore taken the precaution of testing Novell Portal Services on a variety of platform-specific JVMs and web servers. (See “Operation Flawless” on p. 28 for a list of the platforms that Novell has tested and found to support Novell Portal Services.)

EXTENSIBLE MARKUP LANGUAGE (XML) AND EXTENSIBLE STYLESHEET LANGUAGE (XSL)

XML is emerging as the language of e-business because XML can describe data from any source, including data from legacy applications that are specific to a particular business. By describing this data, XML can make the data accessible to users on intranets and the Internet.

Novell Portal Services gadgets use XML to define the data that Novell Portal Services sends to users’ browsers. These gadgets also use XSL to define how that data is presented to the user.

Unfortunately, not all browsers support XML and XSL. As a result, Novell Portal Services includes software that can detect whether or not a user’s browser supports XML and XSL communications. If a user’s browser supports XML and XSL, Novell Portal Services prefers to use these protocols to deliver data from the portal to the browser. (For more information about browsers that support XML and XSL, see “Operation Flawless” on p. 28.)

If Novell Portal Services detects that a user’s browser does not support XML and XSL communications, however, Novell Portal Services uses an internal XML parser to render the XML data as an HTML web page on the web server. Novell Portal Services then uses HTTP to deliver this web page to the user’s browser.

Novell Portal Services prefers to communicate with browsers via XML and XSL because doing so increases its performance. If a browser supports XML, that browser can perform XML parsing and rendering that Novell Portal Services must otherwise perform on the web server. In addition, browsers that support XML can cache XSL style-sheets, thereby decreasing the time it takes for those browsers to display XML data. In other words, says Novell software engineer Matt Brooks, using a browser that supports XML can improve the performance of Novell Portal Services “dramatically.”

HTTP

Since HTTP is the industry standard protocol for sending and receiving web pages over the Internet, users should—theoretically speaking—be able to access Novell Portal Services from any standard web browser. You access Novell Portal Services “through the Internet, so it should be completely browser-independent as long as you have a standard browser,” Rod Allen, a Novell test engineer, explains. (Just the same, Novell plans to test this theory by trying to access Novell Portal Services using a number of standard browsers. For more information about the browsers Novell has tested, see “Operation Flawless” on p. 28.)

By using HTTP over port 80 (the standard port for HTTP communications), Novell Portal Services also protects the applications and information running on servers inside your company’s firewall from outside intruders. In the likely event that your company has a web site, you are probably already allowing HTTP communications using port 80 to pass securely through your company’s firewall. If so, you can use Novell Portal Services without having to open up an additional port on your company’s firewall. As Brooks observes, using HTTP makes Novell Portal Services “very firewall friendly.”

calls at all,” explains Brooks. Instead, Novell Portal Services uses directory calls that comply with the LDAP v3 standard.

If you think about it, the fact that Novell Portal Services uses LDAP calls shouldn’t surprise you. After all, Novell Portal Services is Net service software, which is designed to work across all networks. Consequently, this software must rely on industry standards. In other words, Net service software in general and Novell Portal Services in particular are standards-based software. To wit, Novell Portal Services can use any directory that is compliant with LDAP v3, including NDS eDirectory.

When you select a directory to use with Novell Portal Services, however, you should be aware that not all directories that claim to be LDAP v3 compliant are actually 100 percent compliant. For example, Novell tested Novell Portal Services with Netscape 4.11 Enterprise Directory, and testers found that this directory is not completely LDAP v3 compliant.

Rod Allen, a Novell test engineer, explains that although Netscape 4.11 Enterprise Directory is LDAP v3 compliant in many respects, Novell testers had difficulty extending the Netscape 4.11 Enterprise Directory schema because “the directory wouldn’t accept the standard [LDAP] calls.” Therefore, Novell Portal Services does not support Netscape 4.11 Enterprise Directory. (For a list of LDAP v3 directories that Novell Portal Services does support, see “Operation Flawless” on p. 28.)
Figure 2. Novell Portal Services is standards based and should run on any JVM 1.2.2 or higher on which a web server and web application server (or servlet engine) are also running. Novell Portal Services also works with any directory that complies with LDAP v3. This directory can be running on the same server on which Novell Portal Services is running or on another server.

You can more easily manage portals built with Novell Portal Services if you use NDS eDirectory 8.5 than if you use other LDAP v3-compliant directories. Novell Portal Services includes a wizard that enables you to manage the portal from within the portal. If you are using NDS eDirectory 8.5, this wizard also enables you to configure and to manage users' access rights through the portal.

If you use any other LDAP v3-compliant directory with Novell Portal Services, on the other hand, you must configure and manage these rights manually using that directory's management software. For example, if you use NDS eDirectory 8.0, you must use ConsoleOne or the NetWare Administrator (NWADMIN) utility to configure and manage these rights.

A NEW STANDARD FOR STANDARDS-BASED SOFTWARE

Novell's use of open standards also gives you the flexibility to run Novell Portal Services on almost any network operating system that makes sense for your company. For example, Rockford's network is comprised mainly of NetWare servers, but it has, according to Duffy, "some [Windows] NT and UNIX servers" because these servers make sense for Rockford's network. (For example, Rockford uses Windows NT for its Citrix terminal servers.)

Rockford also plans to add Linux servers to this mix of operating systems and run Novell Portal Services on these Linux servers. As Duffy explains, "We like the concept that, depending on what networking architecture really works best for your environment, Novell Portal Services works with that architecture."

Novell Portal Services owes this flexibility to the following industry standards:

- Java
- eXtensible Markup Language (XML) and eXtensible Stylesheet Language (XSL)
- HTTP

A Java servlet comprises the Novell Portal Services framework. This framework uses HTTP to communicate with users' browsers and delivers portal content to those browsers as an XML stream or as an HTML web page, depending on whether or not a user's browser supports XML. XSL defines the way Novell Portal Services displays this content. (For more information about the standards upon which Novell Portal Services is based, see "Standards at Work" on p. 30.)

CONCLUSION

During an interview about Novell Portal Services, Lynn Madsen, a product manager for Novell, half-jokingly observed: "There are a hundred thousand portals [vendors] out there." Madsen was, of course, deliberately exaggerating to make a point: More and more companies are implementing portals on their networks, and as a result, more and more software vendors are offering portal software solutions.

Companies want portals because portals can increase employee productivity by saving employees' time. Portals also enable companies to engage in e-business. According to the whatis?com website, portals can even increase investor interest. (See the "portal" entry at www.whatis.com.)

What sets Novell Portal Services apart from all of the other portal software that is currently available? Novell Portal Services uses an LDAP v3-compliant directory and relies on industry standards. "Most of our competitors are not based on a directory, and those that are, we don't feel that they're maximizing the directory in the sense that [Novell] is," Brooks claims. Because Novell Portal Services leverages the directory, you can create a portal that is exactly what you want it to be.

Furthermore, Brooks says, although some of Novell's competitors in the portal market have "pretty good-looking solutions," these competitors have "limited themselves to specific platforms." In contrast, Novell Portal Services is designed to run on a variety of platforms using a variety of directories. In fact, Novell Portal Services can probably run on your company's current network architecture, no matter what operating systems comprise that architecture.

No one knows better than you do whether or not your company can benefit from implementing a portal. If your company can benefit from a portal, however, Novell Portal Services can probably make your portal wishes a reality.

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